Optimizing Edge AI Deployment for Enhanced Real-Time Decision-Making: Remote Activation Makes it Happen

Article

In today's evolving technology landscape, companies must take AI to the edge as part of their AI-readiness strategy.

Whether you're talking about making machines smarter on the factory floor, giving self-driving cars a brain boost, enhancing a retail shopper's experience, or even rerouting entire traffic patterns for improved safety and livability, embracing AI at the edge is an informed next step for nearly any organization's strategic planning. It's all about taking the compute power to where the data's created to unlock faster insights and take decisions for your business to the next level.

But how do you bring AI to where data happens at scale? Deploying, provisioning, and managing more than a few remote-based servers can present time, budget, and resource obstacles.

Across its solutions, Lenovo continues to expand collaboration with best-in-class partners to support mass edge AI deployment, delivering tailored, proven and ready-to-deploy AI solutions. Recently, new solutions from Lenovo and VMware help businesses overcome deployment complexity with remote activation. This innovative approach brings near-zero-touch provisioning and allows you to efficiently manage and harness the power of an unlimited number of edge computing resources, promoting scalability, flexibility, and cost-effectiveness in a variety of applications.

Benefits of remote activation

The integration of remote activation into edge server deployment offers a multifaceted solution and makes implementation at scale more seamless both from a technical and labor perspective. Both Lenovo Open Cloud Automation (LOC-A) and VMware Edge Cloud Orchestrator (based on VMware Project Keswick) are accelerating that process and offer the following benefits:

- **Rapid deployment and scalability:** Remote activation enables quick deployment of edge servers across diverse geographical locations without the need for physical intervention. This agility is crucial in industries where time-to-market and adaptability are crucial, like retail, logistics, and telecommunications. And you can easily scale your edge infrastructure remotely to meet evolving requirements.
- **Cost efficiency:** Traditional, on-site server deployment often involves substantial person-power, substantial travel costs, and ongoing maintenance expenses. Remote activation virtually eliminates that by taking everything virtual from the beginning and keeping it there via online monitoring and updating moving forward.
- **Minimized downtime:** Remote management and proactive monitoring, maintenance, and troubleshooting helps further reduce the risk of unexpected downtime. This helps ensure business continuity and minimizes revenue worries due to outages, especially where uninterrupted service is essential, such as healthcare or finance, this approach ensures business continuity and minimizes revenue loss due to outages.
- **Enhanced security**: Edge servers often handle sensitive data and operations. Remote activation allows for centralized security measures, ensuring consistent and robust protection across all edge locations. It simplifies compliance efforts, helping companies meet regulatory requirements more effectively.
- **Global reach**: In an increasingly globalized marketplace, it's vital to maintain a competitive edge in different regions. Remote activation of edge servers brings uniform service delivery and user experiences worldwide, irrespective of geographical differences, giving you a competitive edge in terms of consistency and performance.
- **Reducing carbon footprint:** By remotely activating and deactivating edge servers based on real-time demand, you can optimize resource allocation. This means that computational power is only deployed when necessary, reducing energy consumption and environmental impact while also prolonging hardware lifespan. Remote provisioning could also help reduce operational emissions by removing the need for travel between remote sites for activation and maintenance.
- **Future proofing:** Technology evolves rapidly, and business needs change over time. Remote activation provides the agility to adapt to emerging technologies and trends seamlessly. Upgrading, reconfiguring, or replacing servers remotely ensures they remain competitive and relevant.

Lenovo TruScale democratizes Edge AI

Just like LOC-A and VMware Edge Cloud Orchestrator, Lenovo TruScale for Edge and AI streamlines the Edge AI journey and makes entering—or expanding—your edge AI footprint more attainable, with fewer worries about large capital investments.

It combines the utilization of Lenovo's profound expertise in edge technology deployments and an innovative IaaS financial model that allows customers to pay monthly for their solution, only pay for what they utilize, and receive end-to-end services with periodic hardware refresh cycles, resulting in a no-touch, no-stress IT environment at any location.

Lenovo servers help deliver AI at the edge

The newest in Lenovo edge AI server innovation, the Lenovo ThinkEdge SE455 V3, brings ultimate choice to our customers' unique edge computing needs, with an optimized design for edge AI applications and enhanced and increased functional storage for hybrid cloud, all in the most challenging environmental conditions. And thanks to the new AMD EPYC 8004 processor, its 64 cores consume up to 32% less power than any other edge server currently on the market.

Figure 1. Lenovo ThinkEdge SE455 V3

In this journey toward making Edge AI easier, no matter where you are on your journey, Lenovo and our partners like VMware continue to innovate while ensuring the latest solutions like remote activation, infrastructure as a service, and new levels of hardware simplify the process and bring market-leading solutions in all categories.

To learn more about how Lenovo is simplifying the edge AI process with industry-leading hardware and a streamlined approach, go to https://www.lenovo.com/TheEdge.

About the author

Dave Honaker is the Senior Content Marketing Manager for Lenovo ISG. He works with the Lenovo ThinkEdge team and is passionate about sharing its ability to transform businesses and organizations by simplifying the edge-AI journey and taking the compute power to where data is generated.

Related product families

Product families related to this document are the following:

- Artificial Intelligence
- Edge Servers
- ThinkEdge SE455 V3 Server
- VMware Alliance

Notices

Lenovo may not offer the products, services, or features discussed in this document in all countries. Consult your local Lenovo representative for information on the products and services currently available in your area. Any reference to a Lenovo product, program, or service is not intended to state or imply that only that Lenovo product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any Lenovo intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any other product, program, or service. Lenovo may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to:

Lenovo (United States), Inc.
8001 Development Drive
Morrisville, NC 27560
U.S.A.
Attention: Lenovo Director of Licensing

LENOVO PROVIDES THIS PUBLICATION ”AS IS” WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some jurisdictions do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. Lenovo may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

The products described in this document are not intended for use in implantation or other life support applications where malfunction may result in injury or death to persons. The information contained in this document does not affect or change Lenovo product specifications or warranties. Nothing in this document shall operate as an express or implied license or indemnity under the intellectual property rights of Lenovo or third parties. All information contained in this document was obtained in specific environments and is presented as an illustration. The result obtained in other operating environments may vary. Lenovo may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Any references in this publication to non-Lenovo Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this Lenovo product, and use of those Web sites is at your own risk. Any performance data contained herein was determined in a controlled environment. Therefore, the result obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurements may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

This document, LP1835, was created or updated on October 13, 2023.

Send us your comments in one of the following ways:

- Use the online Contact us review form found at:
  https://lenovopress.lenovo.com/LP1835
- Send your comments in an e-mail to:
  comments@lenovopress.com

This document is available online at https://lenovopress.lenovo.com/LP1835.

Trademarks

Lenovo and the Lenovo logo are trademarks or registered trademarks of Lenovo in the United States, other countries, or both. A current list of Lenovo trademarks is available on the Web at https://www.lenovo.com/us/en/legal/copytrade/.

The following terms are trademarks of Lenovo in the United States, other countries, or both:
Lenovo®
ThinkEdge®

The following terms are trademarks of other companies:

AMD and AMD EPYC™ are trademarks of Advanced Micro Devices, Inc.

Other company, product, or service names may be trademarks or service marks of others.